

R E M A R K S

This is in response to the Office Action that was mailed on October 1, 2002. Formal amendments have been made to some of the claims herein in order to clarify their inter-relationships and to eliminate improper multiple dependencies. No new matter has been introduced.

Claims 23-74 are pending in this application. Claims 1-22 have been cancelled.

Restriction was required between inventions identified by the Examiner as Groups I-VII. In order to be responsive to the requirement for restriction, Applicants elect the invention of Group VI, with partial traverse.

Applicants respectfully traverse the requirement for restriction between Groups VI and VII. Group VI was characterized in the Office Action as consisting of claims 23 etc. "drawn to a composition characterized by basic metal nitrate and a guanidine derivative". Group VII was characterized in the Office Action as consisting of claims 24 etc. "drawn to a composition characterized by basic metal nitrate and a tetrazole derivative". Actually, claim 23 was drawn to a "composition comprising (a) tetrazole derivatives, or at least one guanidine derivative ... and (b) a basic metal nitrate", while claim 24 was drawn to a "composition comprising (a) tetrazole derivatives, or at least one guanidine derivative ..., (b) a basic metal nitrate

and (c) a binder and/or a slag-forming agent". It is respectfully submitted that there is no basis for restricting between Groups VI and VII as they are set forth in the Office Action, and that the two groups in question -- gas generating compositions comprising basic metal nitrates along with tetrazole fuel or guanidine fuel -- are so closely related to one another that they should be examined together in this application. Accordingly, it is respectfully requested that the Examiner modify the requirement for restriction to include the claims of (former) Group VII into elected Group VI.

Applicants were further required to elect a species from amongst the basic metal nitrates. Applicants elect basic copper nitrate. Claims 23-74 relate to compositions that may contain basic copper nitrate, and thus each of claims 23-74 reads on the elected species.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicants respectfully petition for a two (2) months extension of time for filing a reply in connection with the present application, and the required fee of \$400.00 is attached hereto.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at the telephone number of the undersigned below.


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Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1-22 have been canceled.

The claims have been amended as follows:

Claim 23. (Twice amended) A gas generating composition comprising (a) tetrazole derivatives, or at least one guanidine derivative selected from the group consisting of guanidine, guanidine carbonate, nitroguanidine, dicyandiamide, nitroaminoguanidine, and nitroaminoguanidine nitrate and (b) a basic metal nitrate.

Claim 24. (Twice amended) The [A] gas generating composition [comprising (a) tetrazole derivatives, or at least one guanidine derivative selected from the group consisting of guanidine, guanidine carbonate, nitroguanidine, dicyandiamide, nitroaminoguanidine and nitroaminoguanidine nitrate, (b) a basic metal nitrate and] of claim 23, further comprising (c) a binder and/or a slag-forming agent.

Claim 25. (Amended) A gas generating composition comprising (a) tetrazole derivatives, guanidine derivatives or a mixture thereof, (b) a basic metal nitrate, and (d) a combustion-improving agent.

Claim 26. (Amended) The [A] gas generating composition [comprising (a) tetrazole derivatives, guanidine derivatives or a mixture thereof, (b) a basic metal nitrate, (c) a binder and/or a slag-forming agent and (d) a combustion-improving agent] of claim 25, further comprising (c) a binder and/or a slag-forming agent.

Claim 27. (Amended) The gas generating composition as claimed in Claim 25 or 26, wherein (d) the combustion-improving agent is a component to improve combustion properties of the overall gas generating composition, including a burning rate, a duration of combustion, and an ignitability.

Claim 28. (Amended) The gas generating composition as claimed in Claim 25[, 26 and 27] or 26, wherein (d) the combustion-improving agent is at least one selected from the group consisting of silicon nitride, silica, a nitrite, a nitrate, a chlorate or a perchlorate of an alkali metal or an alkaline earth metal [(KNO₃, NaNO₃, KClO₄)], iron (III) hydroxide oxide [[FeO(OH)]], copper oxide, iron oxide, zinc oxide, cobalt oxide and manganese oxide.

Claim 29. (Amended) A gas generating composition comprising (a) tetrazole derivatives, guanidine derivatives or a mixture

thereof and (b) a basic metal nitrate, said composition [and]
meeting at least one requirement selected from the following (1)
to (3):

(1) a weight loss ratio of the gas generating composition
when the gas generating composition is retained in a closed state
at 90°C for 1,000 hours or at 110°C for 400 hours is 2.0 % or
less,

(2) concentrations of trace gases contained in a gas
generated by the combustion of the gas generating composition, as
values measured in a 2,800-liter tank, 400 ppm or less for CO, 40
ppm or less for NO, 8 ppm or less for NO₂ and 100 ppm or less for
NH₃, and

(3) a maximum internal pressure in a gas generator on the
combustion of the gas generating composition is 7,840 to 22,500
kPa.

Claim 30. (Amended) The [A] gas generating composition
[comprising (a) tetrazole derivatives, guanidine derivatives or a
mixture thereof, (b) a basic metal nitrate and] of claim 29,
further comprising (c) a binder and/or a slag-forming agent [and
meeting at least one requirement selected from the following (1)
to (3):

(1) a weight loss ratio of the gas generating composition
when the gas generating composition is retained in a closed state

at 90°C for 1,000 hours or at 110°C for 400 hours is 2.0 % or less,

(2) concentrations of trace gases contained in a gas generated by the combustion of the gas generating composition, as values measured in a 2,800-liter tank, 400 ppm or less for CO, 40 ppm or less for NO, 8 ppm or less for NO₂ and 100 ppm or less for NH₃, and

(3) a maximum internal pressure in a gas generator on the combustion of the gas generating composition is 7,840 to 22,500 kPa].

Claim 31. (Amended) The gas generating composition as claimed in Claim 29 or 30, which further comprises (d) [the] a combustion-improving agent [as claimed in Claim 5 or 6] which is at least one compound selected from the group consisting of silicon nitride, silica, a nitrite, a nitrate, a chlorate or a perchlorate of an alkali metal or an alkaline earth metal, iron (III) hydroxide oxide, copper oxide, iron oxide, zinc oxide, cobalt oxide and manganese oxide.

Claim 32. (Amended) The gas generating composition as claimed in any one of Claims 23, 25, or 29 [23 to 31], wherein the tetrazole derivative as component (a) is at least one selected from the group consisting of tetrazole, 5-

aminotetrazole, 5,5'-bi-1H-tetrazole, 5-nitroaminotetrazole, zinc salt of 5-aminotetrazole, copper salt of 5-aminotetrazole, bitetrazole, potassium salt of bitetrazole, sodium salt of bitetrazole, magnesium salt of bitetrazole, calcium salt of bitetrazole, diammonium salt of bitetrazole, copper salt of bitetrazole and melamine salt of bitetrazole.

Claim 33. (Amended) The gas generating composition as claimed in any one of Claims 25 or 29 [25 to 31], wherein the guanidine derivative as component (a) is at least one selected from the group consisting of guanidine, mono-, di- or tri-aminoguanidine nitrate, guanidine nitrate, guanidine carbonate, nitroguanidine, dicyandiamide and nitroaminoguanidine nitrate.

Claim 34. (Amended) The gas generating composition as claimed in any one of Claims 23, 25, or 29 [23 to 33], wherein the basic metal nitrate as component (b) is at least one selected from the group consisting of a basic copper nitrate, a basic cobalt nitrate, a basic zinc nitrate, a basic manganese nitrate, a basic iron nitrate, a basic molybdenum nitrate, a basic bismuth nitrate and a basic cerium nitrate.

Claim 35. (Amended) The gas generating composition as claimed in any one of Claims 23, 25, or 29 [23 to 34], wherein

component (b) is a mixture of a basic metal nitrate and at least one other oxidizing agent.

Claim 36. (Amended) The gas generating composition as claimed in Claim 35 [any one of Claims 23 to 35], wherein component (b) is a mixture of a basic metal nitrate and at least one other oxidizing agent which includes an alkali metal nitrate.

Claim 37. (Amended) The gas generating composition as claimed in Claim 36 [any one of Claims 23 to 36], wherein when component (b) is a mixture, the alkali metal nitrate contained as at least one other oxidizing agent is potassium nitrate.

Claim 38. (Amended) The gas generating composition as claimed in Claim 35 [any one of Claims 23 to 37], wherein when component (b) is a mixture, the content of the basic metal nitrate in the mixture is 55 to 99.9 % by weight.

Claim 39. (Amended) The gas generating composition as claimed in any one of Claims 24, 26, or 30 [27, 28 and 30 to 38], wherein the binder as component (c) is not crosslinkable.

Claim 40. (Amended) The gas generating composition as claimed in Claim 39 [any one of Claims 24, 26, 27, 28 and 30 to

38], wherein the binder and/or the slag-forming agent as component (c) is not crosslinkable and at least one selected from the group consisting of carboxymethylcellulose, sodium carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide, polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 46. (Amended) The gas generating composition as claimed in Claim 24, which comprises (a) diammonium salt of bitetrazole, (b) a basic copper nitrate, (c-1) sodium carboxymethylcellulose and (c-2) [component (c) as claimed in Claim 39, 40 or 41 except said (c-1)] selected from the group

consisting of carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide, polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 52. (Amended) The gas generating composition as claimed in claim 24, which comprises (a) nitroguanidine, (b) a basic copper nitrate, (c-1) sodium carboxymethylcellulose and (c-2) [component (c) as claimed in Claim 39, 40 or 41 except said (c-1)] selected from the group consisting of carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl

cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide, polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 56. (Amended) The gas generating composition as claimed in Claim 24, which comprises (a) nitroguanidine, (b) a basic copper nitrate, (c-1) guar gum and (c-2) [component (c) as claimed in Claim 39, 40 or 41 except said (c-1)] selected from the group consisting of carboxymethylcellulose, sodium carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide,

polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 58. (Amended) The gas generating composition as claimed in Claim 26 [27], which comprises (a) nitroguanidine, (b) a basic copper nitrate, (c) guar gum and (d) a combustion-improving agent.

Claim 65. (Amended) The gas generating composition as claimed in Claim 24, which comprises (a) dicyandiamide, (b) a basic copper nitrate, (c-1) sodium carboxymethylcellulose and (c-2) [component (c) as claimed in Claim 39, 40 or 41 except said (c-1)] selected from the group consisting of carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose,

carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide, polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 69. (Amended) A gas generating composition comprising (a) guanidine nitrate, (b) a basic copper nitrate, (c-1) sodium carboxymethylcellulose and (c-2) [component (c) as claimed in Claim 39, 40 or 41 except said (c-1)] selected from the group consisting of carboxymethylcellulose, potassium carboxymethylcellulose, ammonium carboxymethylcellulose, cellulose acetate, cellulose acetatebutylate, methyl cellulose, ethyl cellulose, hydroxyethyl cellulose, ethylhydroxyethyl cellulose, hydroxypropyl cellulose, carboxymethylethyl cellulose, fine crystalline cellulose, polyacrylic amide, aminated compounds of polyacrylic amide, polyacrylic hydrazide, a copolymer of an acrylic amide and a metal salt of acrylic acid, a copolymer of

polyacrylic amide and polyacrylic ester, polyvinyl alcohol, acrylic rubber, guar gum, starch, polysaccharides including starch, silicone, molybdenum disulfide, Japanese acid clay, talc, bentonite, diatomaceous earth, kaolin, calcium stearate, silica, alumina, sodium silicate, silicon nitrate, silicon carbide, hydrotalcite, mica, a metal oxide, a metal hydroxide, a metal carbonate, a basic metal carbonate and a molybdate.

Claim 71. (Amended) The gas generating composition as claimed in Claim 35 [any one of Claims 35 to 70], which comprises a mixture of a basic copper nitrate and potassium nitrate as component (b).

Claim 72. (Amended) An inflator for an air bag using the gas generating composition as claimed in any one of Claims 23-26, 29, and 30 [3 and 10 to 71].

Claim 73. (Amended) A molded article in the form of a single-perforated cylinder, a porous [perforated (porous)] cylinder, or pellets, the molded article being obtained from the gas generating composition as claimed in any one of Claims 23-26, 29, and 30 [3 and 10 to 71].